

VMZINC Rainwater systems

Comprehensive gutter and downpipe systems in zinc

Guidelines for design and installation

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Company profile VMZINC® has been manufacturing a wide range of rolled zinc products used primarily for building envelopes since 1837. In addition to batten cap and standing seam roof systems, products include rainwater systems, a wide range of cladding systems, including a number of rainscreen facade products. Since its creation the company has also produced decorative roofing products such as dormers, bull's eyes, weather vanes, finials and balustrades.

Why use zinc rainwater systems?

Introduction Zinc is among the most sustainable metals used in construction today and presents very few corrosion problems. VMZINC rainwater systems are also highly cost-effective, both from an initial procurement and design life perspective.

Whether for new build or refurbishment, VMZINC rainwater systems have been designed to complement a wide range of building materials and styles. Pre-weathered colours offer exceptional colour stability while developing the natural, self-protecting patina for which zinc is renowned. This ensures that maintenance requirements will be minimal throughout the systems' design life and that the material's installed appearance will be retained for many years.

Incorporating all of these qualities, VMZINC offers the **Half Round rainwater system** and **other gutter profiles**. All systems have a comprehensive range of components that are robust and easily assembled.



- Features of VMZINC rainwater systems**
- Lightweight and durable
 - Minimal expansion and creak
 - Low maintenance
 - Choice of gutter profiles
 - Self-protecting natural patina – will not corrode
 - Fully recyclable
 - The Half Round rainwater system uses glued joints
 - The other rainwater systems use soldered joints
 - A design life that can exceed 50 years



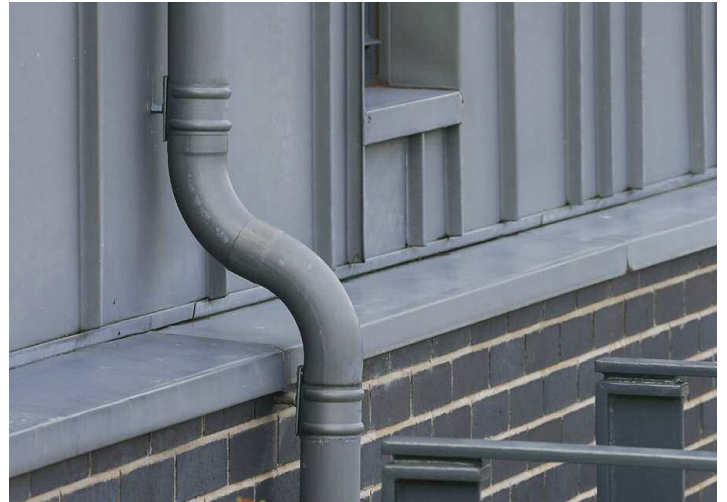
Sustainable performance

BRE Environmental profiles measure the impacts of a construction material, product or building system throughout its life, not only during its manufacture, but also its use in a building over an 80 year period. This includes its extraction, processing, use and maintenance and its eventual disposal.



VMZINC has been audited and reviewed by BRE Global. The Life Cycle Assessment (LCA) modelling derives a Certified Environmental Profile and a Green Guide rating has been produced.

A wide range of zinc roofing and cladding systems has been audited with the systems receiving a Green Guide rating of up to **A+**. These profiles can then be applied to the BREEAM (BRE Environmental Assessment Method) allowing VMZINC to contribute to schemes such as the Code for Sustainable Homes.



OHSAS 18001 Since 2009, VMZINC has been OHSAS 18001 certified, thus conforming to occupational health and safety management systems.



ISO 14001 VMZINC manufacturing plants have conformed to ISO 14001 since 2004/5 so processes are strictly controlled to ensure that emissions are significantly below the national regulation threshold.



ISO 9001 ISO 9001 is the internationally recognised standard for the quality management of businesses and applies to all VMZINC products and services. Certification was originally obtained in 1997 and updated in November 2003 to conform to ISO 9001: 2000.



The use of zinc in the construction industry

Low energy used in the manufacturing process

VMZINC rolled zinc products are used in construction industries throughout the world for their sustainability, distinctive appearance, and low maintenance requirements. As with VMZINC façade and roofing systems, manufacturing processes for our rainwater systems present a low environmental impact, particularly with regard to energy expenditure.

As the comparative energy expenditure diagram opposite shows, less energy is required to extract zinc from the ground than the other principal metals, and is even more favourable for recycled zinc.

Such minimal use of energy in the production of zinc clearly indicates its contribution to sustainable development.

Recycled material

95% of old rolled zinc recovered every year in Western Europe, currently estimated at 100,000 tonnes, is reused. This represents savings in mining resources of between 1 and 2 million tonnes.

Low corrosion, long life

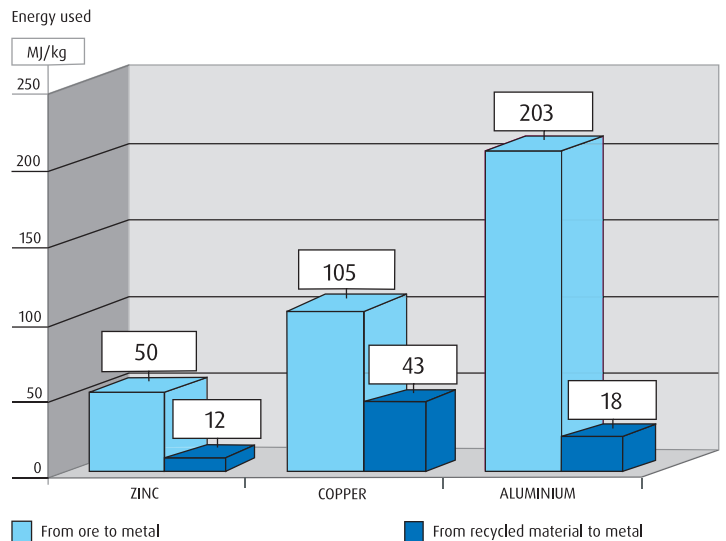
VMZINC rainwater systems benefit from zinc's self-protecting patina which develops as a result of exposure to oxygen, carbon dioxide and water. The average rate of corrosion of VMZINC rolled zinc is 1µm per year. With an initial thickness of 0.7mm, a simple calculation demonstrates that the estimated life span of rolled zinc is over a hundred years.

Timber species that may or may not be used with VMZINC

Compatible	Incompatible
Fir (red or white)	Larch
Spruce	Oak
Poplar	Chestnut
Pine	Cedar (red or white)
	Douglas Pine
	All wood with pH < 5

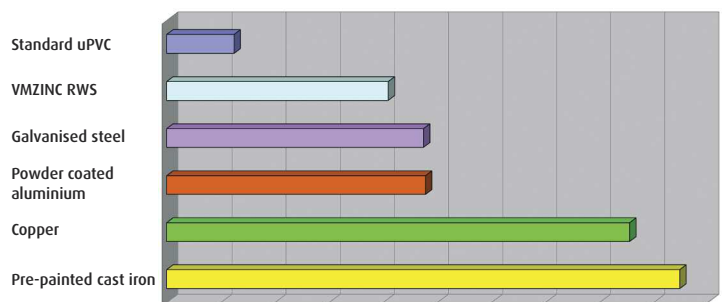
Note:
For confirmation of compatibility between VMZINC rainwater systems and other building materials please call us on 01992 822288.

Comparative energy expenditure in manufacture

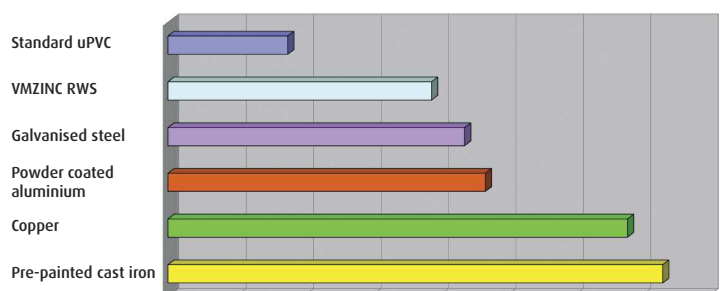


Compared with other metals, very little energy is needed to manufacture zinc metal from ore – less than half the consumption of copper and stainless steel and less than a quarter of that used for aluminium. CO₂ and other greenhouse gas emissions are also, therefore, proportionally less.

Gutter supply-only costs*



Gutter supply-and-fit costs*



* Information on relative costs of specific components is available on request. Based on a 4-bed house.

Half Round rainwater system

A complete gutter and downpipe range

Introduction Through the use of concealed brackets, the Half Round rainwater system provides a stylish, flowing gutter line. The surface is resistant to the accumulation of dirt and debris thereby ensuring that good water flow and discharge rates are maintained.

Designed to be easily and quickly installed, the Half Round rainwater system's concealed brackets simply clip onto the gutter sections, which in turn slide and twist together. The gutter joints are then bonded and sealed using a specially formulated, high performance gun-applied joint adhesive, VMZINC-G.

Downpipes are secured to the wall using a simple but ingenious v-lock and self-locking bracket assembly. Downpipes are then push-fitted together but are not bonded, allowing the joints to expand and contract to accommodate varying thermal conditions.

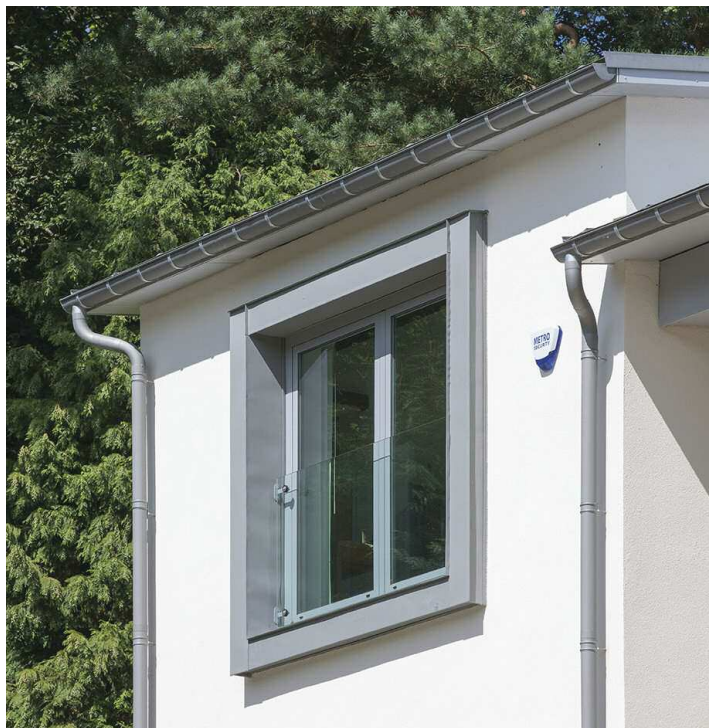
- Benefits**
- Comes in ready-to-use kit form
 - Stylish flowing gutter line through use of concealed brackets
 - Self-locking downpipe brackets
 - Sleeve connection on pipes
 - QUARTZ-ZINC, ANTHRA-ZINC and PIGMENTO finishes
 - Lightweight yet durable
 - Quick to install
 - Low maintenance
 - Long life expectancy
 - Aesthetically distinctive
 - Strength not affected by ultraviolet light
 - Good flow rates and discharge of water
 - Colour does not deteriorate as a result of ultraviolet light



VMZINC Rainwater systems

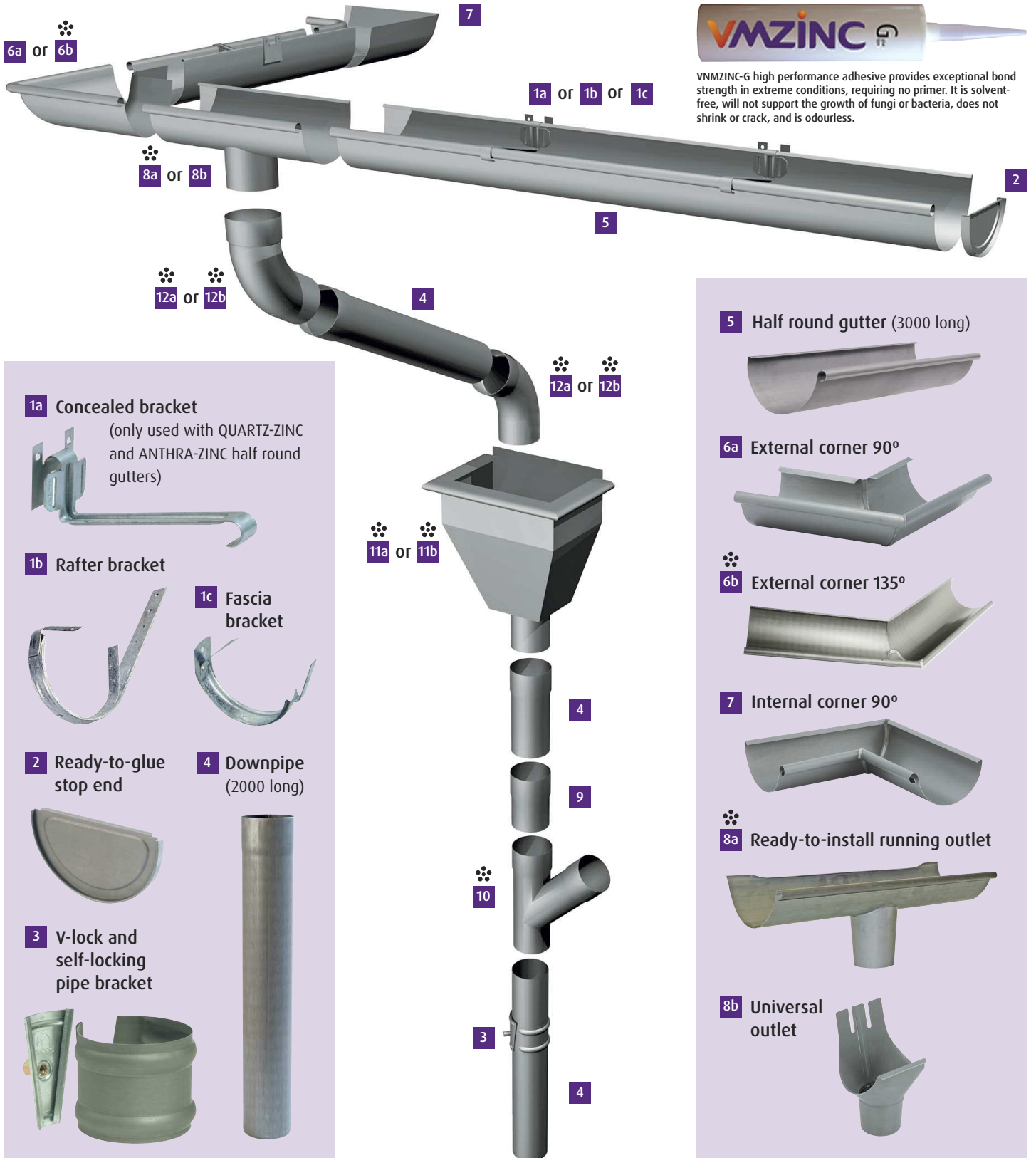
Half Round rainwater system

A complete gutter and downpipe range



Half Round rainwater system

All gutters, pipes and fittings are available in QUARTZ-ZINC and ANTHRA-ZINC. They are also available in PIGMENTO except where indicated with an asterisk❄️



VNMZINC-G high performance adhesive provides exceptional bond strength in extreme conditions, requiring no primer. It is solvent-free, will not support the growth of fungi or bacteria, does not shrink or crack, and is odourless.

1a Concealed bracket
(only used with QUARTZ-ZINC and ANTHRA-ZINC half round gutters)

1b Rafter bracket

1c Fascia bracket

2 Ready-to-glue stop end

4 Downpipe stop (2000 long)

3 V-lock and self-locking pipe bracket

5 Half round gutter (3000 long)

6a External corner 90°

6b External corner 135°

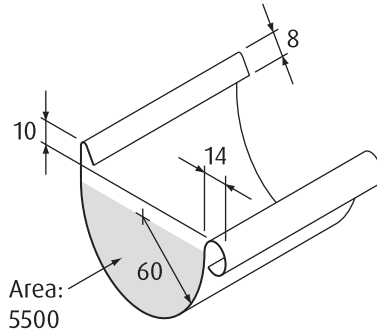
7 Internal corner 90°

8a Ready-to-install running outlet

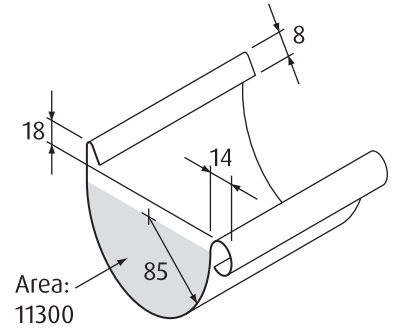
8b Universal outlet

Half Round rainwater system

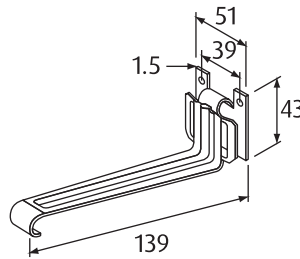
All gutters, pipes and fittings are available in QUARTZ-ZINC and ANTHRA-ZINC. They are also available in PIGMENTO except where indicated with an asterisk❖



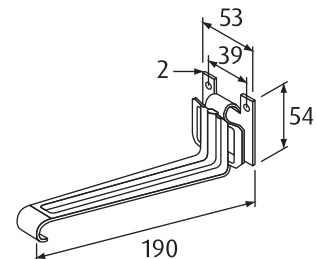
Half round gutter (3000 long):
Type 250



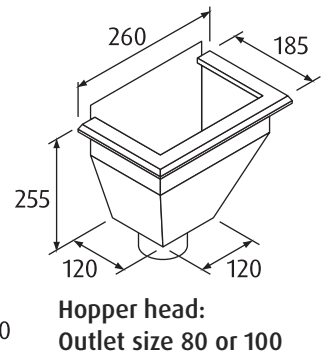
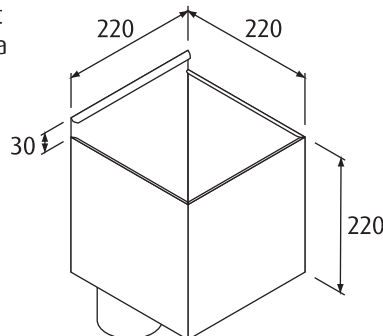
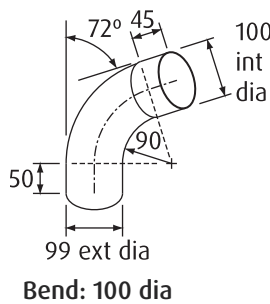
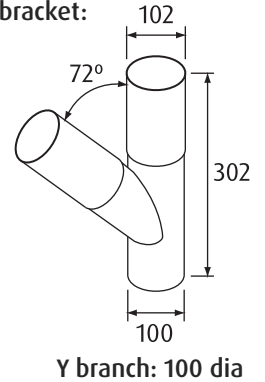
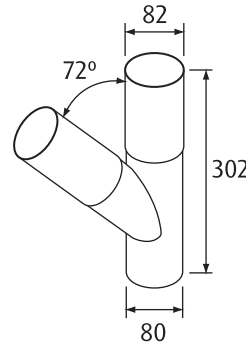
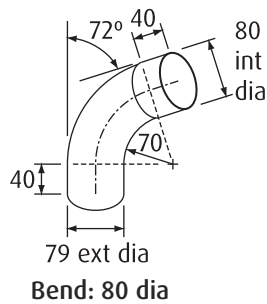
Half round gutter (3000 long):
Type 333



Concealed bracket:
Type 250



Concealed bracket:
Type 333



All dimensions in mm

Half Round rainwater system

Installation procedures

Installing the gutters



1 Using a rule, make a chalkline setting the fall (min 1:200) towards the running outlet and required position of the downpipe.



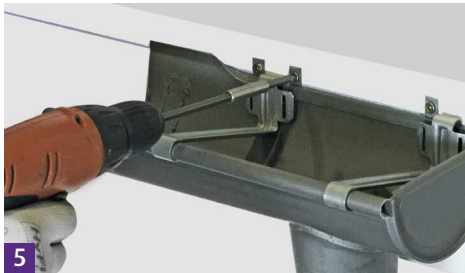
2 Cut the running outlet to the required length, starting from the rolled front edge.



3 Use the VMZINC adhesive to seal and fix the stop end. To avoid cuts from edges, always wear gloves when handling zinc components.



4 Always use two concealed brackets to secure the running outlet.



5 Firmly fix the prepared running outlet according to the chalkline.



6 As for the running outlet, when cutting gutter to the required length, always saw from the rolled front edge first.



7 Clip concealed brackets to the cut lengths of gutter at 400mm max centres.



8 Secure each bracket to the gutter by folding in the two tabs. Then thoroughly clean the gutter joints before gluing.



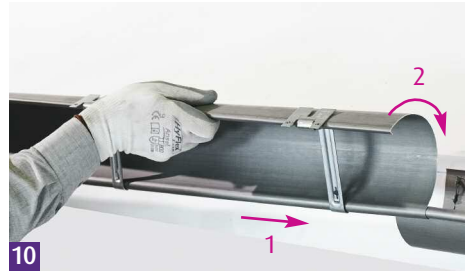
Half Round rainwater system

Installation procedures

Installing the gutters



9 Apply two, thin, parallel beads of VMZINC-G adhesive to the inner surface of the running outlet at max 50mm from the edge.



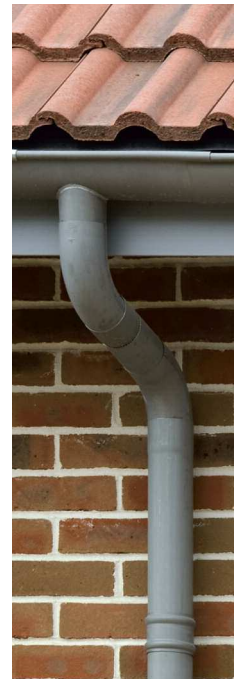
10 Insert the prepared gutter into the already installed running outlet via the rolled front edge first. Ensure a 50mm min overlap.



11 Fix the gutter brackets according to the chalkline.



12 Finally, fit the other stop end.



Installing the downpipes



1 Take two bends and measure the distance from the wall.



2 Once measured, fit the two bends together. It may be necessary to extend the assembly using a piece of downpipe.



3 At downpipe joints, mark positions for the v-locks at every 2 metres (maximum). Then firmly screw-fix the v-lock to the wall.



4 Place the self-locking bracket on the end of each pipe, then slide the assembly neatly into the v-lock to complete the installation.

Box gutters and other profiles

Complete gutter and downpipe ranges

Introduction VMZINC offers a wide range of gutter shapes and sizes that offers scope for use with buildings of varying style and function. It has been developed over many years and has been in widespread use in Europe for commercial and multiple storey buildings in both the new build and refurbishment sectors.

The varying profiles allow the right gutter to be matched with the right architecture. The use of soldered joints for gutters provides a low maintenance jointing solution that has been used for over two hundred years and requires virtually no maintenance throughout the building's design life.

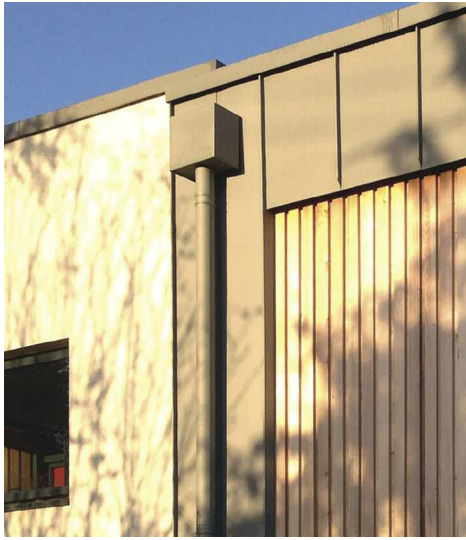
VMZINC solutions are BRE Green Guide rated and the pre-weathered zinc used to manufacture the rainwater systems will not discolour, distort or become brittle over time. Due to the purity of rolled zinc used, cut edges will not corrode as the metal develops a natural self-protecting patina. By contrast, systems which utilise powder-coated and even zinc-coated finishes may be susceptible when gutter lengths are cut or to surface abrasion. VMZINC Rainwater systems suffer no adverse effects of surface deterioration and, with the Box rainwater system in particular, faceted details can be accommodated without the need for bespoke components.

VMZINC gutters are often used in conjunction with other zinc products including the ornaments range which produces dormer windows, finials as well as bespoke ornate roofing products.



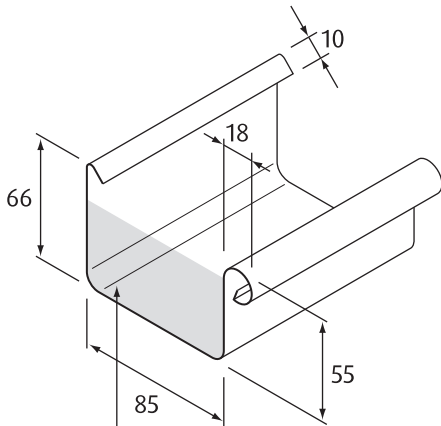
Box gutters and other profiles

Complete gutter and downpipe ranges



Box gutters and other profiles

Gutters and fittings available in QUARTZ-ZINC, ANTHRA-ZINC and Natural Zinc

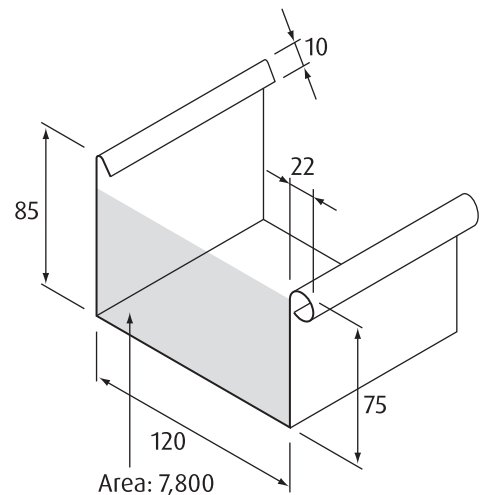


Area: 3,825

Box gutter: Type 250
(3000, 4000, 5000 or 6000 long)



Typical external corner 90°
(Internal 90° corners also available)

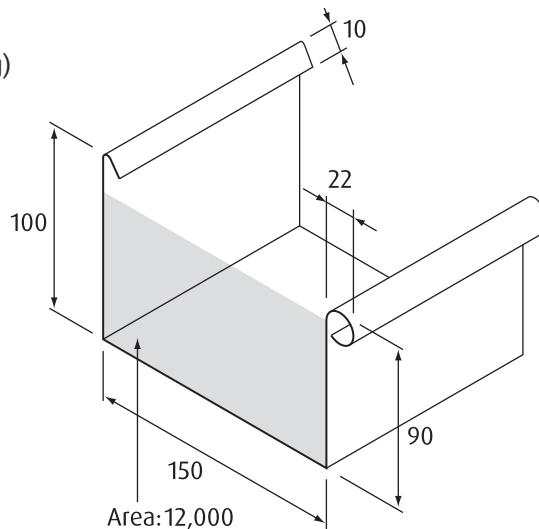


Area: 7,800

Box gutter (3000 long): Type 333



Rafter bracket

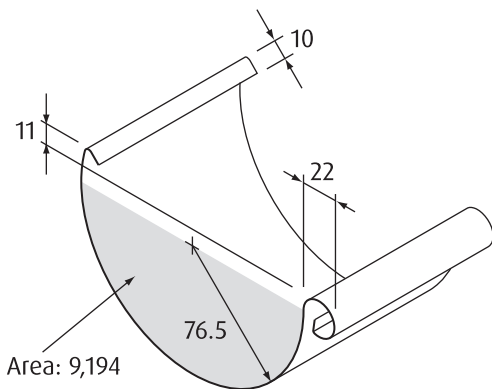


Area: 12,000

Box gutter (3000 long): Type 400

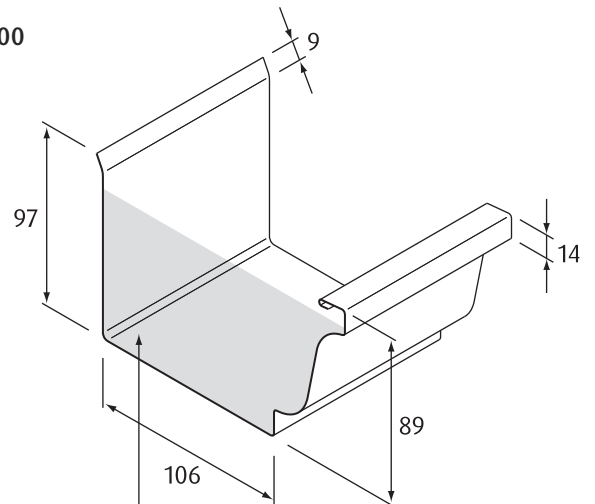


Stop end
(not available in all finishes for all profiles)



Area: 9,194

Half round gutter for underslung bracket
(3000, 4000 or 5000 long):
Type 333



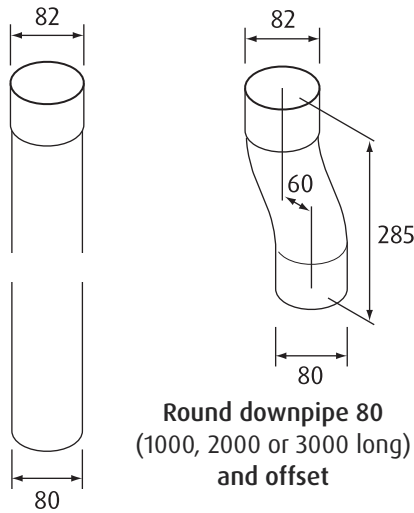
Area: 9,000

Ogee gutter (4000 or 5000 long): Type 333

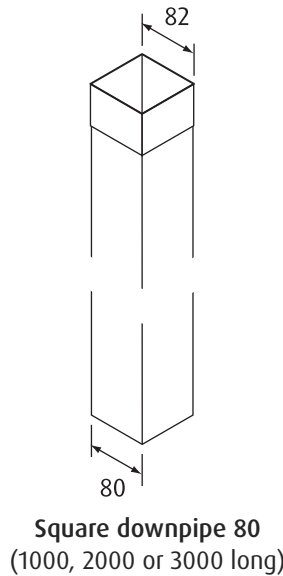
All dimensions in mm

Box gutters and other profiles

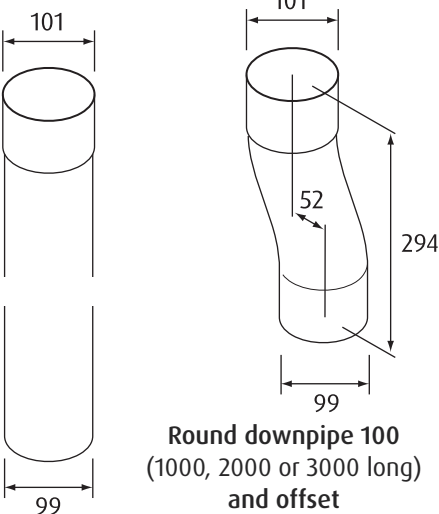
Pipes and fittings available in QUARTZ-ZINC, ANTHRA-ZINC and Natural Zinc



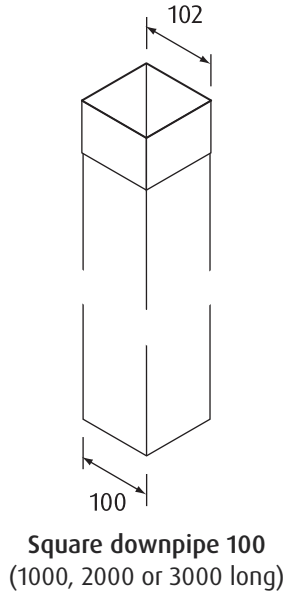
Round downpipe 80
(1000, 2000 or 3000 long)
and offset



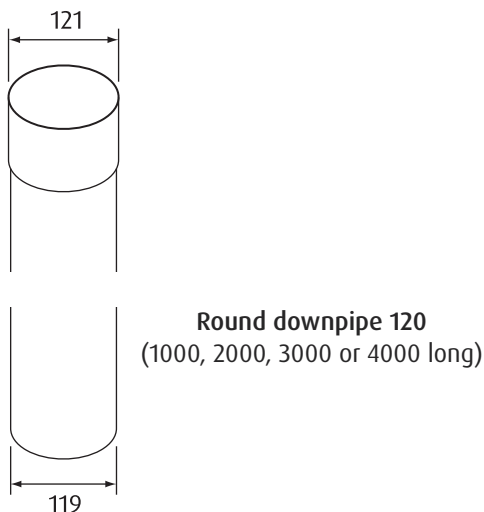
Square downpipe 80
(1000, 2000 or 3000 long)



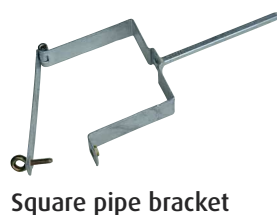
Round downpipe 100
(1000, 2000 or 3000 long)
and offset



Square downpipe 100
(1000, 2000 or 3000 long)



Round downpipe 120
(1000, 2000, 3000 or 4000 long)



Square pipe bracket

The majority of VMZINC gutter brackets whether they be hidden, underslung fascia fix or underslung rafter fix are manufactured from galvanised steel. However we also supply a number of brackets with a black plastic coating in steel or simply stainless steel. Please consult us for further information. For VMZINC round downpipes, the selflocking brackets are made from zinc but the V lock plate is manufactured from galvanised steel. As with the gutter brackets the traditional down pipe brackets are made from galvanised steel. However we also supply a number of brackets which are black plastic coated in steel or simply stainless steel for both round and square downpipes. Please consult us for further information.

Gutters are also available in the PIGMENTO and AZENGAR finishes, however these are non-standard products and therefore please consult us for further information.

As with all zinc products some marks are possible on non-rinsed surfaces, especially in coastal environments. Whilst these marks will not adversely affect the integrity of the zinc they may effect its aesthetics.

All dimensions in mm

General recommendations for gutters

Flow rates using various gutter and downpipe combinations

Gutter profile	Gutter size (mm)	Downpipe size* (mm)	Flow rate (l/s)	Maximum roof area** (m ²)
Half round 250	60 radius	80 dia or 80 x 80	1.89	37
Half round 333	85 radius	80 dia or 80 x 80	2.6	52
Half round 333	85 radius	100 dia or 100 x 100	4.6	92
Half round 333	76.5 radius	80 dia or 80 x 80	2.6	52
Half round 333	76.5 radius	100 dia or 100 x 100	3.5	75
Box 250	85 x 66	80 dia or 80 x 80	1.0	20
Box 333	120 x 85	80 dia or 80 x 80	2.6	52
Box 333	120 x 85	100 dia or 100 x 100	2.61	52
Box 400	150 x 100	80 dia or 80 x 80	2.6	52
Box 400	150 x 100	100 dia or 100 x 100	4.6	92
Ogee 333	106 x 97	80 dia or 80 x 80	2.6	52
Ogee 333	106 x 97	100 dia or 100 x 100	3.2	64

* Note that the flow rates for round and square downpipes are the same:
 i.e. round 80 and square 80 are both 2.6 l/s
 i.e. round 100 and square 100 are both 4.6 l/s

** Based on rainfall of 0.05 l/s/m².

Correct design to BS EN 12056-3:2000, in conjunction with adequate maintenance, will ensure that the roof drainage system does not cause any problems during the life of the building.

Soldered gutters must allow for thermal movement. Traditional high point movement joints can be used as can soldered expansion joints. These must be installed between fixed points (eg outlets) with a maximum distance between expansion joints of 8m.



Expansion joint soldered to gutter



Expansion joint



Downpipe outlet starter soldered to gutter

Specification guidelines

Half Round rainwater system, Box gutters and other profiles

Introduction Specification guidelines for VMZINC Half Round, Box gutters and other profiles are given below.

For full specification advice, contact VMZINC. Bespoke specifications are also available.

Specification guidelines

SYSTEM PERFORMANCE

General

Design Standard: To BS EN 12056-3, clauses 3-7.

Collection and Distribution of Rainwater: Fully complete, and without leakage or noise nuisance.

Design Parameters: Design rate of rainfall as per BS EN 12056-3: 2000, National Annex NB.2 - Category 1.

PRODUCT DESCRIPTION

Half Round rainwater system, Box gutters and other profile rainwater systems

Gutters, downpipes and fittings to:
EN 988: Zinc, copper and titanium

Manufacturer:
VMZINC, Collier House, Mead Lane, Hertford, Herts SG13 7AX.

Half Round rainwater system gutter profiles and sizes:
Half round - 120mm, 170mm.

Half Round rainwater system downpipe profiles and sizes:
Round - 80mm, 100mm

Box gutters and other profiles - gutters:
Half round - 153mm
Box - 85 x 66mm, 120 x 85mm, 150 x 100mm
Ogee - 106 x 97mm

Box gutters and other profiles - downpipes:
Round - 80mm, 100mm, 120mm
Square - 80mm, 100mm

Material:
EN 988: Zinc, copper and titanium

Finishes:
ANTHRA-ZINC, QUARTZ-ZINC, PIGMENTO

Accessories:
Concealed brackets for gutter fixing
V-lock/self-locking bracket assembly for downpipe fixing
Gutter stop ends
Internal, external gutters
Running outlets
Bends, offsets
Y branches
Hopper heads
Rainwater diverters

Joining methods for Half Round rainwater system:
Gutters - glued with VMZINC-G adhesive
Downpipes - loose-fitted, not glued

Joining methods for Box gutters and other profiles:
Gutters soldered in accordance with manufacturer's recommendations.
Downpipes loose-fitted.

EXECUTION PROCEDURES

Preparation

Before commencing work on the rainwater systems, ensure:

- Below ground drainage is ready to receive rainwater. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
- Painting of surfaces which will be concealed or inaccessible, is completed.

Installation generally

- Avoid contact with copper or areas washed by copper to prevent possibility of electrolytic corrosion.
- Compatible and incompatible timber species are given on page 5.
- Other rainwater systems only - Allow for thermal and building movement.
- Adequately protect gutters/pipework from damage and distortion during construction.
- Fit purpose-made temporary caps to downpipes to prevent ingress of debris.

Setting out gutters

- Set out to a true line and even gradient of at least 1 in 200 to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points 50 mm (maximum) below the roof.
- Align outlet positions with connections to below ground drainage, unless shown otherwise on drawings.

Fixing and jointing gutters

Half Round rainwater system

- Clip concealed brackets to gutters at 400mm centres and fold in tabs to secure.
- Use two concealed brackets to secure running outlets.
- Apply VMZINC-G adhesive to each clean and dry gutter joint.
- Slide and twist gutter sections together.
- Screw-fix bracket/gutter assemblies to supporting background.
- Ensure roofing underlay is dressed into gutter.

Box gutter and other profile rainwater systems

- Soldered in accordance with manufacturer's recommendations.

Fixing and jointing downpipes

Half Round rainwater system

- Using the v-locks and self-locking brackets, fix securely with minimum of 3 brackets per pipe.
- Provide additional supports as necessary to support junctions and changes in direction.
- Tighten fixings as work proceeds so that every storey-length of pipework is self supporting.
- Push-fit downpipe sections together without adhesive to allow joints to accommodate thermal movement.

Box gutter and other profile rainwater systems

- Push-fit downpipe sections together, as Half Round rainwater system, to allow joints to accommodate thermal movement.
- For method of fixing to supporting structures, consult VMZINC for recommendations.

Joining gutters and pipework generally

- Cut ends of pipes and gutters clean and square.
- Remove burrs and swarf.
- Clean gutter joints before gluing together.

Gutter test

- Temporarily block all outlets.
- Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

Care and maintenance

- Provide printed instructions of the recommended inspection, cleaning (generally once per year) and repair procedures.
- All VMZINC gutters and downpipes develop a self-protecting surface patina that does not require frequent maintenance.

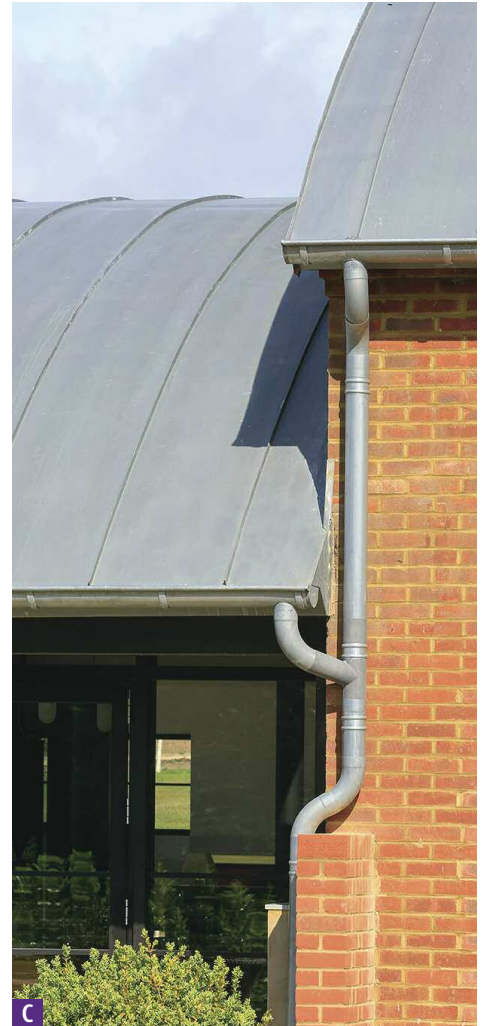


Building with VMZINC

Diverse and complementary products

VMZINC rainwater systems are used in conjunction with a wide range of building materials, ranging from slates to clay tiles and obviously all forms of zinc roofs. However not only is zinc used for rainwater systems and roofs but more and more as a wall cladding material.

The wide range of finishes including the subtly coloured PIGMENTO® range and textured AZENGAR® product can combine with many cladding systems thus allowing a vast range of possibilities.



Project list

- A** Tower Wood Outdoor Activity Centre, Cumbria
PIGMENTO Green PLUS standing seam roofing
- B** North West Regional Sports Campus, N Ireland
QUARTZ-ZINC PLUS standing seam roofing and cladding
- C** Frillinghurst Mill, Surrey
VMZINC PLUS standing seam Natural Zinc
- D** Stourbridge College
QUARTZ-ZINC flat lock cladding
- E** Rooftops, Paris
Mostly Natural VMZ batten cap roofing
- F** Wallace Collection, London
QUARTZ-ZINC PLUS batten cap roofing and ornaments
- G** York University
PIGMENTO Red, Green, Blue and QUARTZ-ZINC VMZ composite panels
- H** Trinity Square, London
QUARTZ-ZINC rainscreen roof



VMZINC Rainwater systems

Building with VMZINC



VMZINC
RAINWATER SYSTEMS

VMZINC
ROOFING

VMZINC
FACADE





Subject

The subject of this document is intended for specifiers (building project architects and design teams) and users (companies responsible for installation on the building site) of the designated product or system. Its purpose is to provide the main information, text and diagrams, relating to specification and installation. Any use or specification outside the area of use and/or specifications contained in this brochure requires specific consultation with the VMZINC technical departments. This does not commit the latter to any responsibility with regard to the feasibility of the design or implementation of these projects..

Countries of application

This document applies exclusively to the specification and installation of the designated products or systems on building sites in the United Kingdom and the Republic of Ireland.

Qualifications and reference documents

Please note that the specification of all construction systems for a given building remains the exclusive responsibility of its design team, who must, in particular, ensure that the specified products are suitable for the purpose of the building and compatible with the other products and techniques used. Please note that the correct use of this manual requires knowledge of VMZINC materials and of the zinc roofing and cladding profession. While construction is underway all standards in force must be respected. Further installation information is available from www.vmpzinc.co.uk or www.vmpzinc.ie. Furthermore, VMZINC offers training courses specifically for professionals.

Responsibility

The specification and installation of VMZINC products are the sole responsibility of the architects and building professionals who must ensure these products are used in a way suited to the end purpose of the construction and that they are compatible with other products and techniques used. The specification and installation of the products implies respecting the standards in force and the manufacturer's recommendations. In this regard, VMZINC publishes and regularly updates specification and installation manuals for specific geographic areas and provides training courses. All the information on the latter can be obtained from the local VMZINC team. Unless otherwise agreed in writing, VMZINC cannot be held responsible for any damages resulting from a specification or installation that does not respect all of VMZINC's specifications and the above standards and practices.

